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WHAT IS CLAIMED IS

1. A method that separates casein from animal milk, including filtering animal milk by letting it pass through a non-electric-charged filtering membrane under the flow pressure of 10-20psi and at a certain level of pH value, so as to separate the casein from the milk.
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2. The method as claimed in claim 1, wherein the aforesaid filtering membrane is a ceramic filtering membrane.
3. The method as claimed in claim 2, wherein the diameter of the holes of the aforesaid ceramic filtering membrane is between 0.1 μ m and 0.44 μ m.
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4. The method as claimed in claim 3, wherein the diameter of the holes of the aforesaid ceramic filtering membrane is between 0.14 μ m and 0.2 μ m.
5. The method as claimed in claim 1, wherein the aforesaid milk is whole milk, defatted milk, or whey.
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6. The method as claimed in claim 1, wherein the filtration mode of the aforesaid filtration is diafiltration.
7. The method as claimed in claim 1, wherein the aforesaid certain level of pH value can vary depending on the physical properties or chemical properties of the target protein to be purified.
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8. The method as claimed in claim 1, wherein the method allows the adding of a pretreatment process before the aforesaid filtration process to remove the fat in the milk.
9. The method as claimed in claim 8, wherein the aforesaid pretreatment process includes a centrifugal process.
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10. The method as claimed in claim 1, wherein the aforesaid animals can

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be non-transgenic animals or transgenic animals.

11. A method of purifying a target substance from animal milk, using any of the methods as stated in claim 1 for the purpose of removing the casein in the milk.
- 5 12. The method as claimed in claim 11, wherein the aforesaid target substance is a peptide or protein.
13. A method of purifying a target substance from animal milk, including the following procedures:
 - 10 (a) using buffer solution to adjust the pH value of the animal milk to a certain level;
 - (b) processing the animal milk of the certain pH value obtained from Step (a) through a first filtering membrane under a certain flow pressure, for the purpose of separating the casein from the milk while collecting the filtered solution; and
 - 15 (c) processing the aforesaid filtered solution through the second filtering membrane under a certain flow pressure and at a certain pH level, for the purpose of condensing the target substance while collecting the second concentrated solution.
- 20 14. The method as claimed in claim 13, wherein the method allows further adding of a chromatographic process after Step (c) for purifying the target substance.
15. The method as claimed in claim 13, wherein the aforesaid target substance is a peptide or protein.
- 25 16. The method as claimed in claim 15, wherein the aforesaid protein is the human coagulation factor IX.
17. The method as claimed in claim 13, wherein the aforesaid first filtering membrane is a ceramic filtering membrane.
18. The method as claimed in claim 17, wherein the diameter of the holes

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of the aforesaid filtering membrane is between 0.1 μ m and 0.44 μ m.

19. The method as claimed in claim 18, wherein the diameter of the holes of the aforesaid filtering membrane is between 0.14 μ m and 0.2 μ m.
20. The method as claimed in claim 13, wherein the aforesaid second
5 filtering membrane is polysulfone filtering membrane.
21. The method as claimed in claim 20, wherein the diameter of the holes of the aforesaid polysulfone filtering membrane is 30kD.
22. The method as claimed in claim 13, wherein the certain flow pressure in the aforesaid Step (b) and Step (c) is between 10 psi and 20psi.
- 10 23. The method as claimed in claim 13, wherein the aforesaid Step (b) and Step (c) is a diafiltration mode.
24. The method as claimed in claim 13, wherein the optimum of the certain pH value in the aforesaid Step (a), Step (b) and Step (c) is between 5.0 and 6.5.
- 15 25. The method as claimed in claim 14, wherein the aforesaid chromatographic process is salt in, salt out, gel filtration, ion exchange chromatography or affinity chromatography.
26. The method as claimed in claim 13, wherein the method allows the adding of a pretreatment process before Step (a) to remove the fat of
20 the milk.
27. The method as claimed in claim 26, wherein the aforesaid pretreatment process includes a centrifugal process.
28. The method as claimed in claim 13, wherein the aforesaid milk is whole milk, defatted milk or whey.
- 25 29. The method as claimed in claim 13, wherein the aforesaid animal is a non-transgenic animal or transgenic animal.

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30. A method of purifying the human coagulation factor IX from animal milk, at least including the following procedures:
- (a) using buffer solution to adjust the pH value of the animal milk to a range between 5.0 and 6.5;
 - 5 (b) processing the animal milk of the certain pH value obtained from Step (a) through a ceramic filtering membrane under a flow pressure between 10 psi and 20 psi, for the purpose of separating the casein from the milk while collecting the filtered solution; and
 - 10 (c) processing the aforesaid filtered solution through polysulfone filtering membrane under a flow pressure between 10 psi and 20 psi and at a pH level between 5.0 and 6.5, for the purpose of condensing the human coagulation factor IX while collecting the second concentrated solution.
31. The method as claimed in claim 30, wherein the method allows the
- 15 adding of a centrifugal process before Step (a) to remove the fat in the milk.
32. The method as claimed in claim 30, wherein the method allows the
- 20 adding of a chromatographic process after Step (c) to purify the human coagulation factor IX.